

## SCHOOL BOARD IMPROVEMENT PLANS IN RELATION TO THE AIP MODEL OF EDUCATIONAL ACCOUNTABILITY: A CONTENT ANALYSIS

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For this study we analyzed the content of school board improvement plans in relation to the Achievement-Indicators-Policy (AIP) model of educational accountability (Nagy, Demeris, & van Barneveld, 2000). We identified areas of congruence and incongruence between the plans and the model. Results suggested that the content of the improvement plans, which contained a heavy emphasis on large-scale, standardized assessments as a measure of student achievement, were incongruent with some key elements of the educational accountability model, especially as it related to the use of indicator data or policy information.

Key words: educational planning, student achievement, large-scale testing, student assessment

L'étude présentée ici visait à analyser le contenu des plans de réussite des conseils scolaires à l'égard du modèle AIP d'imputabilité en éducation (Nagy, Demeris et van Barneveld, 2000). Des zones de congruence et de non-congruence entre les plans et le modèle ont été identifiés. Les résultats donnent à penser que les plans de réussite faisaient une large place aux épreuves communes en tant que mesure du rendement scolaire et n'étaient pas congruents avec certains éléments clés du modèle d'imputabilité en éducation, notamment en ce qui a trait à l'utilisation de données indicatrices ou de renseignements sur les politiques.

Mots clés : planification de l'éducation, rendement scolaire, épreuves communes, évaluation des élèves

In 1998, the provincial government of Ontario required every school board to submit a document detailing their plans for supporting student learning for the following academic year. Consistent with the recommendations of Ontario's Educational Improvement Commission (2000a) to improve schools through greater accountability, the school board improvement plans served as a reporting tool within Ontario's educational accountability framework (Educational Quality and Accountability Office, 2006, Improvement Planning Program Overview) and provided information for taxpayers and parents in a form that allowed them to have reasonable expectations of the educational system, to make reasonable judgments about how well the system performed, and to know who was responsible if they were not satisfied (Royal Commission on Learning, 1994, IV, p.137).

The government gave some support to the school boards to assist them to submit an improvement plan. The Educational Quality and Accountability Office (EQAO), the administrative body for provincial assessment in Ontario, made available support documents and guidelines to assist school boards with the development of their improvement plans. For example, the EQAO Guide to School and Board Improvement Planning (2005) handbook for school and board leaders outlines five steps to effective improvement planning and includes a toolkit with references, resources, sample data analysis, data interpretation guidelines, and an improvement planning template. Little support in the form of release time for school board administrators, professional development, access to experts, or extra administrative assistance was made available. Ultimately, each school board assumed the responsibility to aggregate multiple sources of data, analyze results, set targets, and report back to the EQAO in the form of an improvement plan.

#### THE AIP MODEL OF EDUCATIONAL ACCOUNTABILITY

The Achievement-Indicators-Policy (AIP) model of educational accountability (Nagy, Demeris, & van Barneveld, 2000), developed within the Ontario context, was used in this study to consider the content of school improvement plans. The AIP model focuses on the integration of three key sources of information in educational accountability:

achievement data, indicator data, and policy data. The following scenario illustrates the importance of integrating these data sources to drive decision making in education.

A school's grade-6 achievement scores decreased significantly from the previous year. Based on achievement data alone, one may attribute the change in scores to issues related to teaching or resources. Perhaps newer teachers required more professional development in specific areas of the curriculum, or the resources available for student learning should be reassessed. Indicator data, however, showed that school closures lead to an increase in student mobility at that particular time, with the school receiving an influx of new students. Examining the change in achievement levels in light of this student mobility data, one might observe that these students had problems adjusting to their new school environment, or perhaps there were noticeable differences in the demographics between the new and regular students. Based on the integration of these data, one would conclude that a program to assist the new students to join the current student population would raise the achievement scores for the grade-6 students. In this scenario, achievement data, indicator data (e.g., student mobility), and policy information (e.g., policy resulting in school closures) would lead to a more valid and thorough interpretation of the data.

The concept of integrating achievement data, indicator data, and policy data to better understand the educational achievement of students is not new (e.g., Barker, 2004; Brand, Felner, Shim, Seitsinger, & Dumas, 2003; Ceci, Papierno, & Mueller-Johnson, 2002; Copland, 2003; Evans, Castle, Cooper, Glatter, & Woods, 2005; Harker, 2000; Heck, 2000; Kelly, 2004; Kornhaber, 2004; Lashway 2001; Newmann, Smith, Allensworth, & Bryk, 2001; O'Day, 2002;). In Ontario, technical papers by the Education Quality and Accountability Office (EQAO, 2002a, 2002b) have explored the relationship between education quality indicators collected through their Education Quality Indicators Program (EQUIP) and achievement on grade-3 and grade-6 assessments of reading, writing, and mathematics, and grade-9 assessment of mathematics for the 2001–2002 administration. They found strong positive relationships between achievement on the grade-3 provincial assessment (in reading, writing, and mathematics) and average household income, average school safety

rating, and average adult educational attainment (EQAO, 2002a). They also found strong positive relationships between achievement on the grade-6 provincial assessment (in reading, writing, and mathematics) and access to a home computer, average school safety rating, average household income, and average adult educational attainment (EQAO, 2002a). Finally, for each of these studies, a strong negative relationship was found between achievement on the provincial assessments and student mobility. That is, the higher student mobility, the lower the provincial assessment scores. The authors suggest that socio-economic factors account for much of the variability in achievement scores among schools.

A study of the EQAO grade-9 provincial assessment in mathematics found a strong positive relationship between achievement of students in the *applied* stream, a pathway to graduation intended to prepare students to enter the workforce; students' country of origin; and access to a home computer (EQAO, 2002b). A strong positive relationship was found between achievement of students in the *academic* stream, a pathway to graduation intended to prepare students for post-secondary education, on the grade-9 provincial assessment in mathematics and access to a home computer; average teacher rating on how often computers were used for dynamic geometry software; average rating of school safety; average household educational attainment; and access to a scientific calculator (a calculator that supports [trigonometric](#), [statistical](#) and other [mathematical functions](#), displays [graphics](#), and include features of [computer algebra systems](#)) at home. Finally, the study found a strong negative relationship between achievement for academic and applied students on the grade 9 provincial assessments and student absentee rate. That is, the higher the student absentee rate, the lower the provincial assessment scores. The authors suggest that student absence and access to technical equipment (which may be related to socio-economic factors) account for much of the variability in achievement scores. They conclude that these results were correlational and do not imply a causal relationship among the variables identified as being strongly related to achievement (EQAO, 2002b). These results, however, were similar to other work where positive correlations were found between socio-economic factors and student achievement scores (e.g.,

Chiu & Khoo, 2005; Harris & Herrington, 2006; Sirin, 2005).

Although the EQAO research studies described above (2002a, 2002b) were conducted by a person with advanced technical expertise in quantitative research methods, we felt that the theory of combining achievement, indicator, and policy data could be applied in practice by educational stakeholders with relatively less expertise in statistics. For example, simple figures and tables could be used to investigate relationships between measures of student achievement and indicator variables, with results interpreted in light of school board policies. This type of data analysis, however, requires a balanced approach to the responsibility of interpreting the data for school improvement, which includes shared responsibility for the analysis and interpretation of information among school administrators, teachers, students, parents, educational researchers, and policymakers. This balanced approach includes setting reasonable expectations for the educational administrators who interpret data and set goals (Linn, 2003).

The main argument that Nagy, Demeris, and van Barneveld (2000) present through their AIP model is the importance of understanding value perspectives in educational accountability. The authors state, "[T]he design of assessments, selection of indicators, and analysis and interpretation of data are all value-laden, that is, decision makers impose their own values on the accountability process and only a narrow range of value positions is served" (p. 68). Indeed, different stakeholders of education have different value positions based on their understanding of the purpose of education. For example, if the purpose of education is job training, a measure of success would be the extent to which graduates are prepared to enter the workforce. In another stakeholder's opinion, if the purpose of education is to pass on cultural heritage, then success would be measured by the extent to which graduates adhere to social or cultural norms. Examples of different value positions are documented in educational research literature. For example, Brown (1999) found that although educational policy makers valued student performance data as a measure of successful education, parents were more interested in the safety of the school environment, the training of the educators, and the number of students per class. Nagy et al. (2000) summarized the importance of studying, documenting, or at least acknowledging the

varying value position of the multiple stakeholders of education.

We need achievement data, indicator data, and policy to be interfaced more effectively as indicated in the AIP model. Also, multiple-value positions must be considered and reported. Examining only one value position, for example, focusing almost exclusively on either only costs or only benefits, is inappropriate. We need an interpretive conceptual framework that goes beyond simply collecting data. (p. 78)

The purpose of this study was to analyze the content of 2003-2004 Ontario school-board improvement plans in relation to the AIP model of educational accountability (Nagy et al., 2000). Specifically, the research questions were

- (a) What areas of congruence and incongruence occur between the contents of the school-board improvement plans and the AIP model?
- (b) What areas in the improvement plans need to be addressed to encourage the appropriate use of data for decision making and the setting of educational policy?

#### METHOD

We conducted a content analysis (of 62 school board improvement plans for 2003-2004 that were available to the public on the EQAO website) in light of the AIP model of educational accountability. Criteria for inclusion of reports in this study were public availability of the improvement plans on the EQAO website and plans were written in English. Based on these criteria, all 60 of Ontario's publicly funded English-language school boards were included in the study, as well as the plans of two School Authorities. School Authorities are special types of Ontario schools, such as schools in hospitals and treatment facilities and schools in remote and sparsely populated regions, that take the place of school boards. The 12 French-language district school boards were excluded from the study. Also, the remaining 31 School Authorities were not included in the study because their improvement plans were not publically available—the EQAO withholds aggregate assessment results for School Authorities to protect personal information of these geographically isolated schools and hospital schools. Because the 2003-

2004 plans were not available, we used plans from 2002-03 for two school boards.

We developed a checklist based on the AIP model (Nagy et al., 2000) to document the contents of each board improvement plan in relation to four areas: achievement data, indicators data, policy data, and value statements. Then, we counted the number of improvement plans that contained each of the checklist items.

For the purposes of this document review, we adopted the position of a lay-person who is interested in the improvement plan, but lacks the expertise or experience to “read between the lines.” Therefore, checklist items were noted if the item were explicitly present in the document. We acknowledged that values, for example, are reflected in every decision regarding the content of the plans, but we did not attempt to infer value perspectives in this way for this study.

Three different categories of *achievement data* were included in the checklist. The first was labeled “Provincial assessment data (EQAO).” This category was checked if the board improvement plan referred to the data from the provincially mandated EQAO assessments for grade 3, grade 6, grade 9, or grade 10. We expected all improvement plans to report this type of achievement data because it was required content for the plans. The second category, “Other large-scale assessment data,” was checked if the plan referred to any other type of large-scale testing conducted by the board. This testing included the Canadian Test of Basic Skills (CTBS), Developmental Reading Assessment (DRA), Canadian Cognitive Abilities Test (CCAT), or other large-scale testing programs. The final category, “Classroom assessment data” was checked if plans referred to achievement results from classrooms. This included student report card data or classroom assessments.

Nine categories of *indicator data* were included in the checklist. The category labeled “Students’ gender” was checked if the board improvement plan reported achievement results by gender. The indicator labeled “Students with special needs” was checked if the improvement plan included a separate analysis/interpretation of achievement data for students with special learning needs. “Student language background” was checked if the plan included an analysis of data related to students for whom English was a second language. The

category labeled "EQUIP" was checked if data from the Education Qualities Indicator Program were referred to explicitly (i.e., the term "EQUIP" was documented in the plan). The category labeled "Socio-economic status (general)" was checked if the improvement plan included a statement that referred to students' economic and/or social status, in general, related to the interpretations of achievement data. This included terms such as "socio-economic status" or references to class, such as, "upper class," "middle class," or "lower class," but did not include proxy measures of SES such as parents' educational attainment. "School safety" was checked if data related to school safety issues such as bullying or behavior management were reported. "Parents' educational attainment" was checked if the board improvement plan referred to the highest level of education attained by parents of students. The category "Student mobility" was checked if data related to student transfers were mentioned. Finally, "Availability of computers" was checked if availability of computers in the home (e.g., the number of students with access to a computer at home) was reported in the board improvement plan.

To determine the use of policy data, we analyzed improvement plans for any reference to specific board policies in the creation of their reports.

Finally, board improvement plans were reviewed to determine if they included an explicit values statement (including Board Belief or Mission Statements). We were looking for an explicit statement related to the purpose of education, not the implicit values that may be inferred from other contents of the document.

## RESULTS

The number and per cent of 2003-2004 Ontario school board improvement plans that contained key elements of the AIP educational accountability model are provided in Table 1.

Almost all the boards (95%) included the EQAO achievement data in their improvement plans. Twenty-six of the 62 boards (42%) reported combining the EQAO data with any other type of achievement data to better understand or validate the measures of student achievement.



*Table 1: The count of 2003-2004 Ontario School Board Improvement Plans that contained content that related to the key elements of the AIP Model of Educational Accountability*

Data in school board improvement plans	n	% (rounded)
Achievement Data		
Provincial assessment data (EQAO)	59	95%
Other large-scale assessment data	25	40%
Classroom assessment data	19	31%
Indicators Data		
Students' gender	20	32%
Students with special needs	15	24%
Student language background	10	16%
EQUIP	7	11%
Student socio-economic status (general)	3	5%
School safety	2	3%
Parents' educational attainment	1	2%
Student mobility	1	2%
Availability of computers	1	2%
Policy Data	1	2%
Values Statement		
Board Belief/ Mission Statement	25	40%

Boards that reported using classroom data, with one exception, also reported using other achievement data in developing their plans. The three boards that did not report using the EQAO achievement data also did not report using any other achievement data.

Half the improvement plans reported using some type of indicators data when interpreting their achievement data. Among the indicators investigated, the most frequently used was an analysis of achievement results by gender, with twenty of the improvement plans (32%) referring to a gender analysis of achievement results.

Only one school board referred to policy in its improvement plan. This board attached a policy to use assessment and evaluation to improve student learning as an appendix to their improvement planning report.

Twenty-five school boards included either their belief statement or their vision statement. The type of school board varied in this area. Fifty per cent of the Catholic school boards included value statements while 30 per cent of the public school boards included them.

## DISCUSSION

Results of this study suggest a heavy emphasis on large-scale standardized provincial assessments as a measure of student achievement in the 2003-2004 Ontario school-board improvement plans. Almost all (95%) improvement plans referred to the provincial assessment results as a measure of student achievement. This result was expected because the boards were required to report EQAO results. Three boards did not include EQAO data in their improvement plan, even though they were required to do so. These improvement plans did not refer to any achievement data. The interpretation of this result is not possible without further investigation.

Relatively fewer references in the plans referred to other (i.e., non EQAO) achievement data. Forty per cent of plans referred to other large-scale assessment results and 31 per cent referred to student report card data or classroom test data. The low frequency of reporting of classroom assessments or student report card data is notable because some authors (e.g., Black, Harrison, Lee, Marshall, & Wiliam, 2004) have argued that good formative assessments performed by classroom teachers can

enhance student achievement. The tensions between using assessment for accountability vs. using assessment to improve student achievement may account, in part, for this result. Ideally, however, a combination of multiple measures of student achievement (i.e., triangulation of data) is considered in a data-driven, decision-making model. This triangulation of data increases the validity of interpretations about student achievement that are based on these measures and also provides a local assessment component that addresses local contexts and cultures (Black, Harrison, Lee, Marshall, & Wiliam, 2004; Jones, 2004). This local assessment component is especially important when schools are in the process of reform (Mitchell, 1997). Fewer than half (42%) of the school board improvement plans, however, referred to using more than one source when interpreting student achievement data.

Some key features of the AIP model were not reflected in some school-board improvement plans. Most notable was the lack of use of indicators to describe contextual factors for the analysis and interpretation of student-achievement data. Half of the improvement plans referred to any of the key indicators. Although educational research literature has found gender, language, and socio-economic status to be important predictors of student achievement (EQAO, 2002a, 2002b), many improvement plans we reviewed did not report these issues. Practically no mention of educational policies relevant to the interpretation of data (e.g., policies resulting in school closures) were found in the board improvement plans. Also, value positions were frequently not stated explicitly.

## DISCUSSION

Why is there incongruence between the AIP model of educational accountability and the contents of Ontario school-board improvement plans? Although this research did not address this specific question, we speculate on potential reasons based on the results of other research studies. For example, van Barneveld and Bowen (2004), using interview data, found that many educational administrators in Ontario felt ill-informed and ill-equipped to fulfill their role as interpreters of large-scale assessment data. With the large task of data management (e.g., aggregating data from a number of sources), the required knowledge of

measurement and statistics, technical/computer skills related to data analysis, and the consultation with staff and other experts (if available) regarding interpretation of results and goal setting, educational administrators reported that they were overwhelmed by this role, given time availability and their other responsibilities. van Barneveld and Bowen reported that some of the larger school boards had educational measurement experts on staff to analyze and interpret assessment results, while others had to make-do with their own level of knowledge and skill. Further, some of the resources that were available from the EQAO to support school-board improvement planning were not well known or frequently used. Poor communication between the stakeholders in the educational accountability system may be another factor contributing to the lack of congruence between the school board improvement plans and key elements of educational accountability.

The incongruence between key elements of educational accountability and the contents of school board improvement plans may also be a reflection of differing value systems. As Earl (1998) noted, measuring the quality of an education system is complex, and multiple perspectives exist regarding which data are the right information to consider, and how much data is needed to make judgments. Indeed, work done by Linn (2000, 2003) and Linn, Baker, and Betebenner (2002) suggest that educational accountability systems often have a narrow definition of "what counts" in terms of measures of student achievement. These measurements of student achievement tend to focus on reading/language arts and mathematics as measured by standardized assessment mechanisms. It is possible that a conflict in values exists between stakeholders of education – including the provincial government of Ontario, taxpayers, educators, parents, and students – on the definition of student success, what content areas are of most importance for student success, and how are they best learned, assessed, and reported. Different value positions may be another contributing factor to the incongruence between key elements of educational accountability and the contents of school board improvement plans.

The lack of congruence between school board improvement plans – which are important reports to the public and government within an educational accountability framework – and the key elements of the AIP

model of educational accountability have serious implications for stakeholders of education. First, extensive resources are allocated to the collection of education-related data at local, provincial, and national levels. If these data are not used appropriately by decision makers in educational systems, then these resources are wasted. Second, when data are under-analyzed, important factors related to student achievement are ignored. This may lead to false attributions regarding the success of students, the factors that relate to student success, and the overall performance of education systems. These false attributions can impact not only on understanding the current state of education, but also on plans to improve it. Setting educational plans and policy based on incomplete data may result in inefficient use of resources (i.e., time and money) and may miss the mark of improving student learning.

The results of this study highlight a potential problem in Ontario's educational accountability system: the incomplete use of data to drive decision making for school board improvement planning. What solutions exist for this problem? A number of directions may be explored in future research. First, what support do school boards need to fulfill their role within the educational accountability system? Second, how is this support best delivered or implemented? Third, what communication practices are most effective to transmit essential information/expectations between stakeholders of education within an accountability system? Finally, is our educational accountability program meeting its goals? These questions and others may shed more light on how to obtain congruence between key elements of educational accountability and the contents of school-board improvement plans that are generated within the system.

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